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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,870	10/19/2001	Robert Boesnecker	32860-000181	8899
30596	7590	09/22/2005	EXAMINER	
HARNES, DICKEY & PIERCE, P.L.C.			FAULK, DEVONA E	
P.O.BOX 8910			ART UNIT	
RESTON, VA 20195			PAPER NUMBER	
			2644	

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/030,870

Applicant(s)

BOESNECKER, ROBERT

Examiner

Devona E. Faulk

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Germany on 4/19/1999. It is noted, however, that there are no foreign priority papers on file and applicant has not filed a certified copy of the application as required by 35 U.S.C. 119(b).

***Response to Arguments***

2. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

3. Applicant's arguments filed 7/25/2005, with respect to the rejection(s) of claim(s) 1-9 under 103 (a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Azima, Makivirta.

4. Claims 13-16 have been cancelled.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. **Claims 1-6,8,10 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Azima et al. (US Patent 6,198,831) in view of Makivirta et al. (EP 0567 061).

**Claims 1 and 4** share common elements.

Regarding **claims 1 and 4**, Azima discloses a method for operation of a loudspeaker (panel form loudspeaker, reads on a flat surface loudspeaker of claim 4), in which at least one oscillating coil (9 transducer) is mounted on a surface in the form of a plate (sound radiating panel) having predetermined characteristics (Figure 3, obvious that the plate has some predetermined characteristics), comprising:

stimulating at least one coil to oscillate electrically by a sound source (column 5, lines 15-17);

and in an operating mode, compensating for the frequency response of the loudspeaker by the filter device, which is connected between the sound source and the loudspeaker (Figure 2B, column 5, lines 25-27),

Azima teaches of a filter/correlator (64) and further teaches of a signal conditioner (65) to provide signal correction (column 5, lines 27-30) but fails to specifically teach of how the correction is implemented.

However, Makivirta discloses a method and system for compensating a loudspeaker system, comprising:

measuring the acoustic frequency response of the loudspeaker (64, filter/correlator, column 5, lines 25-26).

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determining a frequency curve based on the measured acoustic frequency response (4, wideband filter, column 5, lines 16-);

determining an inverse frequency curve to the frequency curve (column 1, lines 50-55; column 5, lines 16-26);

simulating the inverse frequency curve in a filter device as a transfer function of the filter device (column 5, lines 16-26);

and in an operating mode, compensating for the frequency response based upon the transfer function (column 3, lines 15-24)).

It would have been obvious to modify Azima to use Makivirta's method of correcting by implementing a transfer function that is the inverse of frequency response (column 5, lines 20-25) to better optimize the power response of the loudspeaker.

**Claim 2** claims the method of claim 1 with the exception that the transfer function of the filter device is simulated by digital filters.

**Claim 5** claims the flat surface loudspeaker of claim 4, wherein the filter device is in the form of a digital filter.

Regarding **claims 2 and 5**, Azima teaches of a filter/correlator. Makivirta's apparatus is to be implemented with FIR filter (column 4, lines 50-53). This implies that any filter processing that is done is digital. Thus it would have been obvious to one of ordinary skill in the art to have the transfer function simulated by digital filters for the benefit of providing better equalization and providing an output signal with less distortion.

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**Claim 3** claims the method of claim 2, wherein the transfer function is formed by FIR (Finite Impulse Response filter), whose filter coefficients are derived from the inverse frequency curve. Azima as modified by Makivirta discloses that the transfer function is the frequency response of the inverse of the frequency response of the loudspeaker (Makivirta, column 5, lines 20-25). It is implicit that the coefficients are derived as claimed. All elements of claim 3 are comprehended by the rejection of claim 2.

All elements of **claim 6** are comprehended by the rejection of claim 5.

**Claim 8** claims the flat surface loudspeaker of claim 5 wherein the filter device is equipped with a digital signal processor.

**Claim 10** claims the flat surface loudspeaker of claim 6, wherein the filter device is equipped with a digital signal processor.

Azima as modified by Makivirta discloses a filter that is equipped with a digital signal processor (column 5, lines 15-25, filter 4). All elements of claims 8 and 10 are comprehended by the rejection of claims 6 and 6 respectively.

**Claim 14** claims the method of claim 1, wherein at least one of oscillating coil has predetermined material characteristics. A coil is obviously present in a loudspeaker and it is obvious that it has some predetermined material characteristics. All elements of claim 14 are comprehended by claim 1. Therefore, claim 14 is rejected for reasons given above apropos of claim 14.

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7. **Claims 7,9,11 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Azima et al. (US Patent 6,198,831) in view of Makivirta et al. (EP 0567 061) in view of Smith (GB 2 265 519 A).

**Claim 7** claims the flat surface loudspeaker of claim 5 wherein the filter device includes a sample and hold element as the input element, connected via an analogue-to-digital converter to the digital filter, whose output is connected to a digital-to-analogue converter.

**Claim 9** claims the flat surface loudspeaker of claim 6, wherein the filter device includes a sample and hold element as the input element, connected via an analogue-to-digital converter to the digital filter, whose output is connected to a digital-to-analogue converter.

Regarding **claims 7 and 9**, Azima as modified by Makivirta fails to disclose that the filter device includes a sample and hold element as claimed. Azima further teaches of Smith teaches of compensating for the non-linear responses of a flat panel loudspeaker including a D/A and an A/D converter connected to a filtering means (digital format converter, Figure 5), a re-linearising device (Figures 5 and 6) and a memory (sample and hold element) connected as claimed (page 4, lines 8-19). It would have been obvious to modify Azima as modified by Makivirta by having the filter include a sample and hold element in order to re-scale the input signal in order to a displacement which is proportional to the input signal.

**Claim 11** claims the flat surface loudspeaker of claim 7, wherein the filter device is equipped with a digital signal processor.

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**Claim 12** claims the flat surface loudspeaker of claim 9, wherein the filter device is equipped with a digital signal processor.

Regarding **claims 11 and 12**, Azima as modified by Makivirta discloses a filter that is equipped with a digital signal processor (column 5, lines 15-25, filter 4). All elements of claims 11 and 12 are comprehended by the rejection of claims 7 and 9 respectively.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devona E. Faulk whose telephone number is 571-272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).




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